

ABSTRACT OF THE DISCLOSURE

A method of practicing precision farming wherein a ground launched, air breathing, powered, unmanned miniature aircraft overflies a field being surveyed to acquire aerial imagery of the same. The flight path of the aircraft is controlled at least partially by automated control apparatus carried aboard the aircraft, and preferably includes radio signal inputs from the GPS. The flight path includes alternating turns assuring that as much of the field as possible be overflowed in one flight. Where necessary, plural complementary flights are conducted. The aircraft is preferably controlled to land at a predetermined site which may be outside of the field being surveyed and which may be its own launch site. Preferably, a redundant navigation system utilizing altitude, air speed, and pitch and roll sensors supplements the GPS inputs. Acquired images may be multispectral, hyperspectral, ultraspectral, thermal, synthetic aperture radar, or laser radar, or any combination thereof. The imagery is analyzed after acquisition to determine localized needs. An agricultural operation such as for example application of water, seed, herbicide, pesticide, fungicide, or performing for example an operation such as pruning or harvesting, is then performed according to the need as determined by the analysis.

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